

## Date of Test

Pipelines which are required to be tested by subdivisions (b), (c) and (d) of Section 51013.5 shall be tested within 90 days after the anniversary date of the last hydrotest. Requests for a waiver to this requirement must be made in writing to the address listed below. Each request will be reviewed on an individual basis and the operator will receive a written response from CSFM.

California Department of Forestry  
Office of the California State Fire Marshal  
Pipeline Safety Division – Lakewood Office  
3950 Paramount Blvd., Suite 210  
Lakewood, California 90712

## Notification of Test to the CSFM or CSLC

It is the responsibility of the *pipeline operator* to notify the CSFM Pipeline Safety Division by telephoning (562) 497-9100 or CSLC at (510) 741-7950 or (562) 499-6348 as appropriate *at least three working days prior to a pressure test date*.

The notification requirement is satisfied only for the date the test is first scheduled and any consecutive days as long the testing process continues. If the testing process is postponed or delayed to a later date, the operator must notify the CSFM and local fire department of the new test date.

Each test will be given a test identification number which must be included with the results of the test.

In an emergency, a notification period of less than three working days may be allowed if approved in advance by CSFM or CSLC.

## Notification of the Local Fire Department

It is the responsibility of the *pipeline operator* to notify the local authority having fire suppression authority *at least three working days prior to each hydrostatic test*.

## Method of Testing

Pressure tests performed in compliance with Subdivisions (b), (c), and (d) of Section 51013.5, California Government Code, shall not show an hourly change for each pipeline segment under test in excess of either 10 gallons or the sum of one gallon and an amount computed at a rate in gallons per mile equivalent to one-tenth of the nominal internal diameter of the pipe in inches.

Allowable Hourly Change in Gallons (not to exceed 10 gallons) =

$$1 + \left[ \frac{ID(inches)}{10} \times \frac{L(ft)}{5280(ft)} \right]$$

ID: the internal diameter of the pipe segments.

Hourly Change: that amount of fluid that cannot be accounted for by direct measurement or through temperature/pressure/volume calculations. In other words, after accounting for fluid measurements and temperature change, the amount of unaccounted fluid loss is limited to the above formula.

## **Measurement of Pressure**

A deadweight tester capable of measuring to 1 psi increments shall be present during each test. The deadweight may be used either continuously throughout the test or at the beginning and at the end of the test. The deadweight tester shall be calibrated to a standard acceptable to the State Fire Marshal at least once every two years.

### **REQUIREMENTS:**

- (1) Deadweight pressure readings shall be taken at a minimum of 1 hour increments
- (2) A pressure recording chart shall continuously record the pressure on the pipe during the test. The pressure recording chart shall be calibrated prior to every test.
- (3) Except for pre-tested pipe, a pressure gauge or similar device shall be provided at each end of the test segment to indicate that the entire test segment is pressurized.

## **Measurement of Temperature**

The temperature measuring devices shall be placed so as to provide a representative sample of the pipeline segment under test.

## **Responsibilities of Independent Hydrostatic Testing Company**

The role of the independent hydrotesting testing company's representative is to witness the pressure test for the prescribed time, ascertain the extent of the test, record the necessary data and forward the results to the CSFM.

Section 51014.5, California Government Code and Section 2567, requires that each hydrostatic test be certified by an independent testing firm or person approved by CSFM. It does not require nor authorize the testing firm or person to approve the test. *It is the pipeline operators responsibility and decision to verify and certify the test results*

The name of the hydrostatic testing company's employee approved to witness the testing must be included on the current CSFM list of Approved Hydrostatic Testing Companies.

The witness must be present for the entire required test period. The required test periods are:

Newly constructed pipelines and pipelines where any segment  
is not entirely visible .....8 hours

Pipelines where each segment under test  
is entirely visible ..... 4 hours

All other required tests ..... 4 hours

*The independent testing firm shall not witness or certify a test conducted on a pipeline on which they have performed new construction or repair work. This does not prohibit a testing firm or person from certifying test results on a pipeline they previously performed work on. The requirement is designed to prevent a company from witnessing and/or certifying results for pipeline segments where the company has performed the repair or installation.*

## **Minimum Requirements for Independent Testing Company**

1. Determine the extent of the test. Verify that the entire test segment is under test.
2. Account for any fluid added to or drained from the pipeline. If a flange leaks during the test, measurement of the amount must be taken into account
3. Observe and document the test pressure for the required test period. Record the minimum test pressure observed during the test. (This is critical since the pipelines operating pressure is based on this pressure.)
4. Provide a sketch or drawing or map of the pipeline segment tested.
5. Each witness should be qualified and be familiar with the minimum testing requirements.
6. Any testing inconsistencies should be brought to CSFMs/CSLCs attention immediately.

## **Test Results**

Only the Test results required by CSFM shall be submitted in the format included in Appendix B. Test results shall be mailed to:

California State Fire Marshal  
Pipeline Safety Division  
3950 Paramount Blvd., Suite 210  
Lakewood, California 90712

Facsimile or computer generated reports are also acceptable.

The test results submitted to the CSFM for review must include any calculations made to adjust for changes in volume due to temperature, pressure and elevation changes. Calculations used must represent commonly accepted standards such as those used by the American Petroleum Institute (API), industry or university level engineering courses. The operator may use test calculations provided by the independent testing firms.

If no calculations are provided, CSFM staff will evaluate the test results utilizing a standard formula and constants listed in Appendix C.

Test results will be reviewed by CSFM to insure the allowable hourly change criteria is met. If a test result is submitted without supporting calculations and shows a hourly loss greater than allowed, the operator must retest the pipeline or provide additional data or calculations.

## **Pre-tested Pipe**

*Pre-tested pipe* is piping which has been hydrostatically tested prior to installation.

Hydrostatic testing of pre-tested pipe shall be witnessed by a approved representative of a certified independent hydrostatic testing company for a minimum of 4 hours.

The following information shall be marked on the outside of the pre-tested pipe at intervals of approximately five feet:

CSFM Test ID No.  
Date of Test  
Test Pressure.

## **Leaks Occurring During Hydrostatic Testing**

Except for failures of pre-tested pipe, any leak on a pipeline undergoing a pressure test shall immediately be reported to the local fire department and to the California Office of Emergency Services (OES). The 24-hour emergency telephone number for OES is **1-800-852-7550**.

Except for small leaks on pipe valves or flange gaskets, all leaks occurring on the pipeline as a result of the testing process must be reported to CSFM on the hydrostatic test form. Information must include the location and cause of the failure.

## **How to Become a CSFM Approved Hydrostatic Testing Company**

Section 51014.5, California Government Code, requires that all hydrostatic testing results submitted to the State Fire Marshal must be certified by an independent testing firm or person approved by the State Fire Marshal. Each year, the State Fire Marshal publishes a list of companies and persons who are approved to certify and witness hydrostatic tests for the following fiscal year.

Companies wishing to conduct hydrostatic testing or certify test results must make application to the State Fire Marshal using the form found in the Initial Application Approval as an Independent Hydrostatic Testing Firm form and pay the appropriate fee. Engineering staff will examine the completed application and evaluate the qualifications, experience and training of the applicant's employees. An on-site evaluation will be conducted of the company's business location to determine if adequate equipment is available.

The applicant will be notified in writing of the approval or denial of the application. Approved applicants and their staff will be included on the State Fire Marshal's annual list of Approved Hydrostatic Companies.

## **Renewal of Annual Hydrostatic Testing Approval**

Approved hydrostatic testing companies must submit application for renewal of their approved status to the State Fire Marshal each year. The State Fire Marshal will send each approved company an invoice and renewal form during May. Application and fees must be received prior to the beginning of the fiscal year. Companies who do not renew their approved status in a timely fashion may not be included in the annual publication of the State Fire Marshal's Approved Hydrostatic Testing Company list.

## **Pressure Tests Using Liquid Petroleum with a Flashpoint Over 140°F as the Test Medium**

CSFM may authorize the use of liquid petroleum having a flashpoint over 140°F (60°C) as the test medium. All pressure tests using a liquid petroleum which exceeds the maximum operating pressure must be approved by the State Fire Marshal. *This includes tests which are not required by the California Government Code.*

The pipeline operator must apply in writing to:

California Department of Forestry  
Office of the California State Fire Marshal  
Pipeline Safety Division  
1131 S Street  
Sacramento, California 94244-2460

The request must contain the API or specific gravity and flashpoint of the test medium and all of the following data:

1. Necessity to use a product other than water
2. Proposed product to be used for testing
3. Test pressure (% of SYMS)
4. Pressure test procedures which, at a minimum, address the following:

- (a) Communication along the entire pipeline route.
- (b) Personnel stationed at sensitive areas.
- (c) Procedures to follow in the event of a leak.
- (d) Notification of local fire departments

5. CSFM personnel will observe each test where possible.

CSFM will review the application and provide a written response to the pipeline operator. CSFM staff may observe the testing at any time.